

NOTES ON THE NATIVE FLORA OF NEW SOUTH
WALES.

By R. H. CAMBAGE.

PART iii. ORANGE TO DUBBO AND GILGANDRA.

(Plates ii.-iii.)

These notes are the result of observations made at various periods, but the most of them were taken in October, 1904, those referring to parts of the country between Orange and Dubbo being made from the train. At Dubbo various plants were collected, but from there to Gilgandra the notes refer to the country in the vicinity of the railway line, while a further collection was made in the latter district. As no detailed examination of the country was possible, it follows that many of the smaller plants have been overlooked, but the appended lists are sufficient to convey an impression of the general character of the flora over the area described.

The altitude of the country around Orange is about 3000 feet above sea-level, while at Wellington it has fallen to 1000 feet, and at Dubbo and Gilgandra the heights at the railway stations are 867 and 942 feet respectively. The climatic influence on the vegetation is evident owing to this change in altitude, with its corresponding difference in rainfall, the higher country around Orange having an annual rainfall of 38 inches, while at Wellington it is 23·8 inches and at Dubbo 22·8 inches, according to the records at the Sydney Observatory.

The general direction of Gilgandra from Orange is a little west of north, the distance being approximately 120 miles, and the whole of the area described is within that valuable wheat-growing belt of country which runs throughout New South Wales, west

of and nearly parallel to the Great Dividing Range, and situated partly on the western slopes and partly on the eastern margin of the great plains.

Some species of *Eucalyptus* noticed near Orange continue southerly along the highlands and extend into Tasmania, though they are also in the north on the colder parts of New England as well; while, on the other hand, several plants found at Gilgandra, and which require much warmer conditions, spread northwards into Queensland.

The distance between Orange and Wellington is about 55 miles; and as the country falls gradually the whole way, in all nearly 2000 feet, this area is one in which the change of flora is very marked, and is chiefly owing to the difference in climatic conditions. The geological formation around Orange is igneous in origin, much of it basaltic, but in proceeding towards Wellington areas of Silurian slates are passed, with considerable deposits of limestone near Wellington. Much of the country beyond this shows very little rock, but near Dubbo there are some Triassic sandstone tracts, and some basaltic flows; while between Dubbo and Gilgandra, except for some patches of basalt, very little rock is seen, and the country begins to assume the characteristic levels of the western plains.

The *Eucalypts* noticed between Orange and Wellington were:—*E. viminalis*, Labill., (a somewhat drooping White Gum, sometimes called Manna Gum), *E. coriacea*, A. Cunn., (White or Scribbly or Cabbage Gum), *E. amygdalina*, Labill., (Peppermint), *E. Bridgesiana*, R. T. Baker, and one of the trees identified by Baron von Mueller as *E. Stuartiana*, F.v.M., (Apple or Woollybutt), *E. melliodora*, A. Cunn., (Yellow Box), *E. tereticornis*, Sm., (Forest Red Gum), *E. macrorrhyncha*, F.v.M., (Stringybark), *E. rubida*, Deane & Maiden (*E. Gunnii*, var. *rubida*, Maiden; White Gum), *E. dives*, Schau., (Peppermint), *E. maculosa*, R. T. Baker (*E. Gunnii*, var. *maculosa*, Maiden; White or Spotted Gum), *E. hæmastoma*, Sm., var. *micrantha*, Benth., (*E. Rossii*, Baker & Smith; Brittle Gum or Brittle Jack), *E. Cambagei*, Deane & Maiden (Mountain Apple, known between Rockley and Burruga as

Bundy), *E. polyanthemos*, Schau., (Red Box), *E. hemiphloia*, var. *albens*, Miq., (White Box, first seen near Euchareena), *E. sideroxyton*, A. Cunn., (Ironbark or Mugga), and *E. rostrata*, Schl., (River Red Gum), found only along the banks of streams near Wellington.

The first three species mentioned extend to Tasmania.

Of the above Eucalypts only the following were noticed after passing Stuart Town, where the elevation above sea-level is about 1800 feet:—*E. tereticornis*, *E. hemiphloia*, var. *albens*, *E. melliodora*, *E. polyanthemos*, *E. macrorrhyncha* (scarce), *E. sideroxyton*, and *E. rostrata*.

E. sideroxyton is the Ironbark from which the old mining township of Ironbarks, now Stuart Town, derived its name.

The other species which were seen nearer Orange usually prefer a colder climate than is found in these latitudes below an altitude of 1800 feet. The species which predominates between Stuart Town and Wellington is var. *albens*, and in travelling westward it is found that this tree is generally more in evidence than any other in heralding the approach of the western flora; and it is commonly found growing on land suitable for wheat cultivation. A few trees of this species were noticed in flower in October, though the usual flowering time for this tree is the autumn.

Other trees and shrubs noticed between Orange and Wellington were:—*Acacia dealbata*, Link (Silver Wattle), *A. lanigera*, A. Cunn., *A. decora*, Reichb., *A. melanoxyton*, R.Br., (Hickory), *A. armata*, R.Br., *A. vestita*, Ker (a few miles off the railway line towards Ophir and known as Black Willow around Hargraves, according to L. F. Harper), *Daviesia latifolia*, R.Br., (Hop scrub of the cold country), *Exocarpus cupressiformis*, Labill., (Native Cherry), *Loranthus* sp., *Hibbertia* sp., *Diuris* sp., *Hardenbergia* (*Kennedyia*) *monophylla*, Benth., (False Sarsaparilla), *Stackhousia linarifolia*, A. Cunn., *Cassinia Theodori*, F.v.M., *Sterculia diversifolia*, G. Don (Currajong), *Callitris robusta*, A. Cunn., (White or Cypress Pine), *Argemone mexicana*, L., (Mexican Poppy), and towards Wellington much *Hordeum murinum*, L., (Barley Grass)

The Flannel Flower, *Actinotus Helianthi*, Labill., is to be found on the hillside about one mile south-westerly from Wellington, this being one of the isolated spots in the western district where this well known beautiful coastal flower is found.

Neither the Pine nor the Currajong was noticed in any quantity till Mumbil was reached, where the altitude is about 1500 feet, after which both species were very common.

From Wellington to Dubbo is about 30 miles, and as most of the country has been cleared near the railway line, the list of plants noticed is not an extensive one, but is sufficient to show that, with the exception of an occasional plant, the cold country flora has been left behind.

The district around Wellington is very productive and presents a very different appearance from that which met the gaze of the explorer Oxley on the 19th August, 1817, when this spot was discovered. On approaching this locality after a tedious journey across the Upper Bogan from the Lachlan, near Euabalong, Oxley speaks of the sound of the mogo (stone tomahawk), denoting the presence of the natives, and on entering the valley of the Bell River, near its junction with the Macquarie, he writes:—"Imagination cannot fancy anything more beautifully picturesque than the scene which burst upon us. The blue gum trees* were exceedingly fine, whilst that species of Eucalyptus† which is vulgarly called the Apple Tree, and which we had not seen since we quitted the eastern coast, again made its appearance on the flats, and of large size."‡

But now the sound of the mogo is heard no more, and in its place there is the bleating of sheep, as well as the humming of the stripper, and the noise of the harvester on one of our richest wheatfields.

The Eucalypts growing between Wellington and Dubbo are:—*E. rostrata*, *E. hemiphloia*, var. *albens*, *E. melliodora*, *E. conica*, Deane & Maiden (*E. Baueriana*, var. *conica*, Maiden; Woollybutt

* Evidently *Eucalyptus rostrata*.

† *Angophora intermedia*.

‡ Oxley's Expeditions.

or Apple-Box), *E. tereticornis*, with var. *dealbata* on the hillside, *E. Woollsiana*, R. T. Baker (Narrow-leaved Box), a little of *E. viridis*, R. T. Baker (Narrow-leaved or Whipstick Mallee, usually the first of the Mallées met with in going west), *E. sideroxylon*, and a little of *E. affinis*, Deane & Maiden (Ironbark Box).

The last two species were formerly more plentiful in the vicinity of Murrumbidgee than is the case at present, many of the trees having been cut down for the timber, and these species will soon be unobservable from the train.

Other trees and shrubs noticed were :—*Angophora intermedia*, DC., (Apple), *Callitris robusta*, *Acacia homalophylla*, A. Cunn., (Yarran), *A. decora*, *Pimelea linifolia*, *Sterculia diversifolia* (plentiful in places), *Heterodendron oleacefolium*, Desf., (Rosewood), *Eremophila longifolia*, F.v.M., (one of the plants called Emu-bush), *Casuarina Luehmanni*, R. T. Baker (Bull Oak), and *C. Cunninghamiana*, Miq., (River Oak, a tree found only along the banks of fresh-water streams). Although this species extends up the Macquarie to the Fish River above Bathurst, I was unable to find its terminal point down the stream, but was informed that it ceases before the river enters the reed beds where the channel is lost.

The Wellington-Dubbo district is one of the few places where *Angophora intermedia* crosses to the southern side of the Great Western Railway, excepting on the east of the Great Dividing Range; and it is remarkable that its absence from the area extending from Penrith to the Lower Lachlan and Upper Bogan was noted and commented upon by Oxley in the first journey ever made by white men over this latter part of the country, though the observations were probably made by Allan Cunningham and Charles Fraser, the botanists who accompanied Oxley's expedition.

The plants mentioned in the following list were noted along the Mudgee road, by far the greater number being collected on a sandstone hill at about four miles from Dubbo, the alteration in geological formation being in this instance responsible for a wonderful change in the flora. The following plants were seen :—*Clematis*

microphylla, DC., *Hibbertia linearis*, R.Br., *Sterculia diversifolia*, *Stackhousia linariifolia*, *Cryptandra amara*, Sm., var. *longiflora*, F.v.M., *Heterodendron oleafolium*, *Dodonaea viscosa*, L., (Hopbush), *D. truncatiales*, F.v.M., *D. triangularis*, Lindl., *D. boroniaefolia*, G. Don, *Mirbelia pungens*, A. Cunn., *Pultenaea microphylla*, Sieb., *Indigofera australis*, Willd., *Swainsona procumbens*, F.v.M., *Glycine clandestina*, Wendl., *Cassia* sp., *Acacia decora* (a little shrub sometimes called Silver Wattle in the west), *A. homalophylla*, *A. spectabilis*, A. Cunn., *Haloragis elata*, A. Cunn., *Calythrix tetragona*, Labill., *Melaleuca uncinata*, R.Br., *Angophora intermedia*, *Eucalyptus Woollsiana*, *E. conica*, *E. tereticornis* and var. *dealbata*, *E. hemiphloia*, var. *albens*, *E. melliodora*, *E. crebra*, F.v.M., (Narrow-leaved Ironbark), *E. sideroxylon*, *E. affinis*, *Galium umbrosum*, Sol., *Centaurea melitensis*, L., *Minuria leptophylla*, DC., *Calotis cuneifolia*, R.Br., *Helichrysum bracteatum*, Willd., (often known as Everlasting-flower), *H. apiculatum*, DC., *H. diosmifolium*, Don, *Helipterum incanum*, DC., (a very pretty composite and one which contributes much towards the beauty of the Western Plains flora), *Goodenia pinnatifida*, Schl., *Dampiera adpressa*, A. Cunn., *Brunonia australis*, Sm., (a very pretty purple flower), *Wahlenbergia gracilis*, DC., (Bluebell), *Lissanthe strigosa*, R.Br., *Echinum violaceum*, Linn., (locally called Beggar's Blankets from the hairyness of the leaves), *Convolvulus erubescens*, Sims, *Kochia microphylla*, F.v.M., (a Cotton-bush), *Pimelea glauca*, R.Br., *Casuarina Luehmanni*, *C. paludosa*, Sieb. (?), *Callitris robusta*, *Hordeum murinum*, L., and *Cheilanthes tenuifolia*, Sw., a small fern growing among the rocks.

An interesting form of *Dodonaea truncatiales* (Hopbush) was found on the sandstone hill before mentioned, the leaves being both simple and pinnate, the latter often divided into three or five leaflets. The same form was also found near Gilgandra, though the occurrence of this feature had not previously been recorded. This form has since been described by Maiden and Betche as *D. truncatiales*, F.v.M., var. *heterophylla* (these Proceedings, 1904, p. 738).

Calythrix tetragona was found on the sandstone area at an approximate elevation of 1000 feet above sea-level. It is a

somewhat showy little shrub when in bloom, with its dense heads of whitish flowers, and its identification is assisted by the long fine awns which remain when most of the flower has fallen. Some interest attaches to this plant through its almost total disregard for climatic conditions, for it may be found around Port Jackson, on the sandstone of the Blue Mountains at 3000 feet, on the volcanic formation of the Canoblas near Orange at 4000 feet, and on many of the sandy areas of the interior. It has been recorded from all the States of Australia, and although its habitat is not altogether regulated by the geological formation, it appears to show a preference for sandy soil.

Eucalyptus affinis was also found on the sandstone hill, and usually frequents a sedimentary formation. One tree in particular was noticed close to the northern side of the road; and although its identification might perhaps present some difficulty to the botanist, the ordinary bushman would quickly and confidently dispose of it as a hybrid with *E. sideroxylon* (Mugga) as one parent, and perhaps *E. hemiphloia*, var. *albens* (White Box), as the other, both of which are growing around.

E. crebra, the Narrow-leaved Ironbark, appears scarce near Dubbo, but is plentiful along the Dubbo-Gilgandra railway line, particularly on the eastern side. It has a reddish timber of good quality, and affords employment for a number of men who are engaged cutting railway sleepers. In the district mentioned this species seems to be by far the most important for sleeper-cutting, and great stacks of sleepers may be seen at most of the small railway stations between Dubbo and Gilgandra. Though in general appearance it has some resemblance to the coast White or Grey Ironbark, *E. paniculata*, Sm, its leaves are usually narrower, its fruits smaller, the bark darker and perhaps rougher, while its timber is much redder. The seedling and "sucker" leaves of this species are very narrow, some of the latter collected near Gilgandra being only one line wide by two inches in length, while others were under two lines wide and over four inches long. *E. crebra* is common in Queensland, and in coming southerly, it, like some other species already referred to in previous papers,

crosses to the east of the Liverpool Range, and though it continues for some distance south-westerly along the western side of the range to the Dubbo district, it also comes south along the coastal area, and is fairly common on the Wianamatta shale formation between Penrith, Parramatta and Picton.

E. siderophloia, Benth., the Broad-leaved Ironbark, was not seen near the railway line, though I and others have collected it on the Harvey Range south of Dubbo, and it is a well known tree north-easterly of Dubbo; but its timber in this locality is regarded as inferior to that of *E. crebra*, and this western form is more inclined to split in concentric circles, or, as the splitter terms it, to ring. This species attains its greatest dimensions in the coastal area, where it is often known as Red Ironbark. A form in the Western district often has pale glaucous leaves, and has been named *E. siderophloia*, var. *glauca*, Deane & Maiden (these Proceedings, 1899, p. 461).

E. melanophloia, F.v.M., the Silver-leaved Ironbark, or Ghinghit of the Macquarie River aborigines, was also absent from the area described, although it occurs near Narromine west of Dubbo, and extends north-easterly towards Barraba.

The species mentioned as *Casuarina paludosa* (?) is a small oak tree or shrub, often about 10 feet high, and in the western area is generally found growing on ridges. (It has previously been alluded to in these Proceedings, 1902, p.193).

C. stricta, Ait., (*C. quadrivalvis*, Labill.), an oak tree with pendulous branches, and which also prefers ridges, was not noticed near the railway line, but occurs on various hills near Dubbo. It is often known as Sheoak, and has been freely used as fodder for stock.

Callitris robusta, the White or Cypress Pine, is a common and useful tree in the Dubbo district, providing the chief timber for the sawmills. From enquiries made locally, it was found that this species is divided by timber getters into two varieties under the names of White and Red Pine; while *C. calcarata*, R.Br., which grows on the hills, though it was not noticed from the railway line, is usually known as Black or Green Pine. Tall trees

of *C. robusta* with clean barrels are generally recognised in the Dubbo district as White Pine, while those with branches on their stems, and which are probably younger and sounder, are cut in the sawmills under the name of Red Pine.

From Dubbo to Gilgandra is a distance northerly of about 40 miles, and the following Eucalypts were seen from the train:—*E. melliodora*, *E. conica*, *E. hemiphloia*, var. *albens*, *E. Woollsiana*, *E. rostrata*, *E. populifolia*, Hook., (Grey or Shiny-leaved or Bimble Box), *E. crebra*, *E. sideroxylon*, *E. viridis*, *E. dumosa*, A. Cunn., (White Mallee), and *E. tereticornis*.

E. populifolia is an inland species, seldom coming so far east as the western slopes, excepting in the north of this State, and its eastern margin roughly coincides with the western edge of *E. hemiphloia*, var. *albens*, though in many places they overlap, while in others there are spaces from which both species are absent (*vide* these Proceedings, 1901, p.331).

E. viridis and *E. dumosa* formed a Mallee scrub at about 15 miles from Dubbo, and in this locality were many interesting shrubs, some of which could not be identified from the train.

Various trees and shrubs noticed near the railway line were:—*Hibbertia* sp., *Argemone mexicana*, *Apophyllum anomalum*, F.v.M., (Currant Bush), *Pittosporum phillyræoides*, DC., *Sterculia diversifolia*, *Geijera parviflora*, Lindl., (Wilga), *Heterodendron oleaceifolium*, *Dodonæa* sp., *Cassia* sp., *Acacia homalophylla* (Yarran), *A. decora*, *A. spectabilis*, A. Cunn., (sometimes called Blue Wattle from the general colour of the bark), *A. triptera*, Benth., (Wait-a-while), *A. dealbata* (green variety), *A. pendula*, A. Cunn., (Myall), *A. sp.*, *Angophora intermedia* (Apple Tree), *Wahlenbergia gracilis*, *Myoporum platycarpum*, R.Br., (Dogwood), *Eremophila Mitchellii*, Benth., (Budtha or Sandalwood), *Kochia microphylla*, *Casuarina Cunninghamiana* (on the Talbragar River and again on the Castlereagh at Gilgandra), *C. Luehmanni* (Bull Oak), *C. Cambagei*, R. T. Baker, (Belah), *Fusanus acuminatus*, DC., (Quandong), *Exocarpus cupressiformis*, Labill., (Native Cherry), and *Callitris robusta* (White Pine).

Mr. J. H. Maiden has expressed the opinion that *Casuarina Cambagei*, R. T. Baker, is identical with *C. lepidophloia*, F.v.M., ('Forest Flora,' Part xiii.).

The following is a list of plants noticed, and in many instances collected, on Bongeabong Holding at from 6 to 10 miles westerly from Gilgandra and in the vicinity of the Marthaguy Creek :—
Hibbertia linearis, R.Br., var. *canescens*, *Argemone mexicana*, *Blennodia lasiocarpa*, F.v.M., *Capparis Mitchellii*, Lindl., (Native Orange), *Apophyllum anomalum*, *Pittosporum phillyræoides*, *Spergularia rubra*, Cambess., *Sterculia diversifolia* (Currajong), *Linum marginale*, A. Cunn., (a blue flower often known as Blue Bell but usually larger than *Wahlenbergia gracilis*), *Zygophyllum glaucescens*, F.v.M., *Geijera parviflora* (Wilga), *Atalantia glauca*, Hk., (Wild Lemon), *Atalaya hemiglauca*, F.v.M., (Whitewood, scarce in this locality but increases towards the north), *Heterodendron oleefolium* (Rosewood), *Dodonæa viscosa* (Hopbush), *Psoralea patens*, Lindl., *Swainsona* sp., *Cassia eremophila*, A. Cunn., *Acacia hakeoides*, A. Cunn., *A. triptera*, *A. decora*, *A. homalophylla* (Yarran), *A. pendula* (Myall), *A. Oswaldi*, F.v.M., (Mildly or Miljee), *A. implexa*, Benth., (Broadleaved Wattle), *A. doratoxydon*, A. Cunn., (Currawong), *A. spectabilis* (Blue Wattle), *A. dealbata* (called Black Wattle in this locality), *A.* sp. (Mother-umbung), *Kunzea parviflora*, Schl., *Melaleuca uncinata*, R.Br., *Angophora intermedia*, *Eucalyptus rostrata*, *E. tetricornis* and var. *dealbata*, *E. Woollsiana*, *E. largiflorens*, F.v.M., *E. conica*, *E. populi-folia*, *E. hemiphloia*, var. *albens*, *E. sideroxydon* (scarce), *Loranthus pendulus*, Sieb., (growing on *Acacia pendula*), *Olearia pimeleoides*, A. Cunn., *Calotis cuneifolia*, *Cassinia levis*, R.Br., (?) probably a short-leaved form, *Ixiolena leptolepis*, Benth., *Helipterum incanum*, *Goodenia pinnatifida*, *Scævola spinescens*, R.Br., *Dampiera adpressa*, *Brunonia australis*, *Wahlenbergia gracilis*, *Jasminum lineare*, R.Br., *Lyonsia eucalyptifolia*, F.v.M. (?), *Marsdenia Leichhardtiana*, F.v.M., *Convolvulus erubescens*, *Mimulus gracilis*, R.Br., *Myoporum platycarpum* (Dogwood), *Eremophila Mitchellii* (Budtha), *E. longifolia*, F.v.M., (Emu-bush), *E. Brownii*, F.v.M., *Verbena officinalis*, Linn., *Ajuga australis*,

R.Br., *Kochia microphylla* (Cotton Bush), *Ptilotus exaltatum*, Nees, *Hakea leucoptera*, R.Br., (Needlewood), *Pimelea linifolia*, *P. microcephala*, R.Br., *P. glauca*, R.Br., *Casuarina Luehmanni* (Bull Oak), *C. Cambagei* (Belah), *Fusanus acuminatus* (Quandong), *Choretrum Candollei*, F.v.M., *Exocarpus aphylla*, R.Br., (Stiff Cherry), *Callitris robusta* (White Pine), *Bulbine bulbosa*, Haw., *Thysanotus tuberosus*, R.Br., (Fringed Violet), *Arthropodium strictum*, R.Br., *Cyperus lucidus*, R.Br., (growing in Marthaguy Creek), and *Cheilanthes tenuifolia*.

Atalantia glauca, known as Wild Lemon, was not plentiful, only one cluster of bushes being noticed. Its vernacular name is in allusion to its sharp spines, and round acid berries, about half an inch in diameter, which somewhat resemble small lemons, though they are really more like limes. The species belongs chiefly to Queensland.

In many localities throughout the western districts there is a small form of Yarran (*Acacia homalophylla*) which appears to differ in the root from the large trees of this species. Old trees have a system of lateral roots extending all round the base of the trunk, but many of these smaller trees, though erect in the barrel, are found to be supported by one root in a horizontal position, or practically at right angles to the stem. Still no botanical differences could ever be detected between the two forms of Yarran. On looking into the matter near Gilgandra and examining very young trees, it was found that all those which grew with the stem at right angles to the root were suckers. It was further noticed that there was an absence of suckers around a large growing tree, but where one had been cut down, or ringbarked, quite a crop of suckers had sprung up, and in one instance the outermost plant was 27 feet from the parent tree. The observations clearly proved that the felling of the trees caused the growth of many suckers which would in time, if left, form small clumps of trees. In examining the small roots which proceeded from the parent stump, it was noticed that they increased in size immediately beyond the point from which the young plants grew, and just behind this point there

often seemed a tendency for the root to gradually decay, which would therefore have the effect in such cases of eventually leaving the new tree with its one horizontal root, and this latter stage is commonly found when the young trees exceed 10 or 12 feet high. It therefore seems probable that most of the old Yarran trees grew from seedlings, and that suckers have become much more common since the advent of clearing and ringbarking operations.

Acacia implexa was sparsely distributed around Gilgandra, and this spot appears to be about on the western edge of the habitat of this species. It is known as Broadleaved Wattle and Hickory.

A. salicina, Lindl., the Cooba of the Lachlan country, was not seen, but has been recorded for the Castlereagh by Dr. Woolls ('Lectures on the Vegetable Kingdom,' p.69).

Neither was *A. neriifolia*, A. Cunn., observed, though it is common in the northern part of New England and is known to extend past Gilgandra to the Nyngan district. The *Acacia* mentioned by me in these Proceedings for 1900 (p.717) as occurring about 7 miles west of Trowell Creek House has since been identified as this species, from a comparison with more complete material collected by Mr. J. L. Boorman near Hermidale in the same district.

A. doratoxylon (Currawong) is not plentiful near Gilgandra, but was noticed on a low ridge about 10 miles westerly from that town. The ridge in question is so low as to be scarcely noticeable, but in prehistoric times has been higher, and is being gradually lowered by ordinary denudation. On it were also what might be termed a few remnants of *Eucalyptus sideroxylon* and *E. tereticornis*, var. *dealbata*, both of which prefer ridges in the western districts. Even should this land not be cleared, it seems probable that these three species would disappear from it in the distant future, and a study of the feature shows that a field geologist with some knowledge of the local flora in this level class of country would thereby receive great assistance in tracing disappearing contours.

Associated with the above trees was another species of *Acacia* known locally as Motherumbung, and which has not yet been identified, as pods were not procurable. So far as seen, it appears to have much the same habit as *A. doratoxylon*, growing in clusters with long thin stems about 2-4 inches in diameter and perhaps 20-30 feet high (Plate ii.). But botanically it is quite a different plant, for while the Currawong has phyllodia with numerous fine parallel nerves and flowers arranged in spikes, the Motherumbung has "leaves" with a distinct midrib and lateral veins placed at a fairly acute angle, and its flowers arranged in capitula or heads instead of spikes. The Motherumbung has narrow-lanceolate phyllodia, obtuse, often with a callous point sometimes slightly curved, rarely exceeding 2 lines broad, and from about $\frac{3}{4}$ of an inch to over 2 inches long, the terminal ones being short and very glutinous towards the ends, 1-nerved with sometimes a gland about 2 lines from the base. The peduncles are solitary, about 2-3 lines long, bearing a rather small globular head of about 25 flowers. Pinnae on the seedlings soon disappear, but three or four pairs were noticed on the lower phyllodia of one plant. Judging by the description, it appears to have affinities to *A. Gnidium*, Benth., a Queensland species (B.Fl. ii. 359), but in Bailey's 'Queensland Flora' there is nothing to show that this *Acacia* has been collected except at Mount Pluto by Mitchell, and the pods are not described.

Specimens of Motherumbung, without pods, are in the National Herbarium, Botanic Gardens, Sydney.

The Black Wattle of the district appears to be a form of *A. dealbata*, though the glaucous appearance seen on this species in the highlands is absent, the green leaves thus giving the trees the aspect of *A. decurrens*, Willd., the common Green or Black Wattle of the coast.

A. spectabilis is often known in this locality as Blue Wattle, chiefly from the colour of the bark on the stems, and *A. decora* is referred to as Silver Wattle, but these names are not so constantly used for those species as that of Brigalow is for *A.*

harpophylla, F.v.M. This latter tree was not seen near Gilgandra, but northerly towards Coonamble it becomes common.

Of the Eucalypts, the Box-trees predominate, especially *E. populifolia*, *E. conica*, and *E. Woollsiana*. The latter was noticed to have very narrow leaves and small fruits, and towards the western margin of the habitat of this species the character seems accentuated, while towards the eastern edge, which to the south of Wellington is near the foot of the western slopes, the leaves and fruits increase in size. In these Proceedings for 1904 (p.764) Mr. J. H. Maiden has suggested that these two forms might be regarded as separate species; but in travelling through the western districts I have found it difficult to decide on a line of demarcation between the two forms, the change in size of leaves and fruits appearing to be gradual, as suggested above. In one spot on Bongeabong, seedlings of *E. Woollsiana* were found covering an area of about 100 acres and forming a thicket as dense as a Mallee scrub.

E. largiflorens, F.v.M., a River Box with rough bark on the branches and often a silvery drooping foliage, was not seen at Gilgandra, but specimens were procured on the Marthaguy near Bongeabong, which spot marks a point on the eastern margin of the habitat of this species. North-westerly from here, towards the Darling River, this tree becomes common.

E. conica was noticed to be flowering throughout the Dubbo-Gilgandra district in October, 1904, and from observations made on the Lachlan the species was usually found flowering there in the Spring months also.

E. hemiphloia, var. *albens*, the common large glaucous-leaved White Box of the western slopes, was scarce around Gilgandra, the western margin of its range being almost reached.

E. melliodora, Yellow Box, was seen only near the banks of the Castlereagh River, the species being one which gradually leaves the hills as the far west is approached, reaching its most western points by following down the river flats. This tree is generally indicative of a fairly good soil, and in some districts selects the very best.

Marsdenia Leichhardtiana was found twining over shrubs on the low ridge previously referred to, and being covered with its large green somewhat egg-shaped fruits (follicles) presented a very ornamental appearance.

Mimulus gracilis was noticed on the plains in small patches, about six inches high, the hooded-looking little blue flowers being very attractive.

During recent years all trees which are suitable as fodder have been lopped in order to provide feed for stock, and many of the native trees in consequence present a very different appearance from that ordinarily seen, for the process of trimming has caused several species to become covered with quite a dense foliage which has increased their beauty and symmetry. Amongst these may be mentioned *Heterodendron oleafolium* (Rosewood), usually not a very attractive-looking tree, *Myoporum platycarpum* (Dogwood), *Geijera parviflora* (Wilga), *Sterculia diversifolia* (Currajong), and *Casuarina Cambagei* (Belah), though the latter three at all times add to the beauty of the landscape. *Acacia pendula*, the far-famed Myall or Boree, always an emblem of grace and beauty, does not usually recover to the full extent its former attractive appearance, but a healthy half-grown plant, which each year it is becoming more difficult to find owing to the fact that the seedlings are so readily eaten by sheep and cattle, is one of the most handsome objects to be seen amongst the members of the western flora (Plate iii.).

Eremophila Mitchelli, the widely distributed Budtha or Sandalwood, is not a fodder tree, the only part which stock appear to appreciate at any time being the buds and young flowers.

At a point about 7 or 8 miles north-easterly from Gilgandra and just east of the Bidden road is an area of sandy soil formed from a disintegrating sandstone, and producing a local flora of its own, although interspersed with some of the common western plants. The locality in question has something of a heathy appearance, though owing to the presence of various tall shrubs and little trees, it cannot be regarded as a typical heath. The chief Eucalypts on the area are some small specimens of *E.*

crebra, *E. tereticornis*, var. *dealbata*, and a few scattered clumps of *E. viridis*. The following is a list of plants collected during a short visit to the spot:—

Dodonaea viscosa, *D. cuneata*, Rudge, *D. truncatiales*, *D. triangularis*, *Mirbelia pungens*, *Daviesia ulicina*, Sm., *Pultenea microphylla*, *P.* sp., *Dillwynia floribunda*, Sm., *D. juniperina*, Sieb., *Hardenbergia monophylla*, *Acacia triptera*, *A. implexa*, *A. decora*, *A. cultriformis*, *A. Cunn.*, (not very plentiful), *A. lineata*, *A. Cunn.*, *A. gladiiformis*, *A. Cunn.*, *A. Oswaldi*, *A. spectabilis*, *A. dealbata* (green variety), *A. hakeoides*, *Calythrix tetragona*, *Kunzea parvifolia*, *Melaleuca uncinata*, *Calotis cuneifolia*, *Helichrysum diosmifolium*, Don, *H. bracteatum*, Willd., *Goodenia pinnatifida*, *Dampiera adpressa*, *Melichrus urceolatus*, R.Br., *Brachyloma daphnoides*, Benth., *Lissanthe strigosa*, R.Br., *Solanum ferocissimum*, Lindl., *Cassytha glabella* R.Br., (parasitic on *Melaleuca uncinata*), *Persodnia* sp., *Grevillea arenaria*, R.Br., *Pimelea linifolia*, *Casuarina paludosa* (?), *Exocarpus cupressiformis* (Native Cherry), *Stypandra glauca*, R.Br., and *Xanthorrhoea* sp. (Grass-tree).

The following is a list of plants found near Port Jackson, on the higher parts of the Blue Mountains, and also around Dubbo and Gilgandra, though some occur in other parts of the State as well, and they cannot all be regarded as typical of the sandstone areas:—*Cryptandra amara*, Sm., *Daviesia ulicina*, Sm., *Dillwynia floribunda*, Sm., *Hardenbergia* (*Kennedy*) *monophylla*, Benth., *Indigofera australis*, Willd., *Acacia implexa*, Benth., *Glycine clandestina*, Wendl., *Calythrix tetragona*, Labill., *Loranthus pendulus*, Sieb., *Helichrysum diosmifolium*, Less., *Wahlenbergia gracilis*, DC., *Melichrus urceolatus*, R.Br., *Lissanthe strigosa*, R.Br., *Brachyloma daphnoides*, Benth., *Ajuga australis*, R.Br., *Cassytha glabella*, R.Br., *Pimelea linifolia*, Sm., *Exocarpus cupressiformis*, Labill., *Choretum Candollei*, F.v.M., *Thysanotus tuberosus*, R.Br., and *Stypandra glauca*, R.Br.

The pinnate-leaved form of *Dodonaea truncatiales* was also found in this locality, the shrubs being from 3-5 feet high, and 3-foliolate leaves were fairly common.

An interesting *Pultenaea* was also collected on this area. With its fine leaves and yellow flowers, it presents the general facies of *Dillwynia ericifolia*, Sm., but on inspection it is seen to be covered with fine stipules, the presence of which separates it from the latter genus, and it may turn out to be a new species. Specimens are in the National Herbarium, Sydney.

The well-known *Hardenbergia (Kennedyia) monophylla* or False Sarsaparilla was also noticed. This pretty purple-flowering, twining plant is very common in the coastal area, being often a mass of bloom in the Spring on the sides of the railway line between Sydney and Gosford; but it is not plentiful in the interior, consequently its occurrence on this sandy area is of interest in showing some connection between the eastern and western floras, which may be traceable to a similarity of geological formation.

Acacia gladiiformis was recognised by its one-nerved linear-lanceolate phyllodia, always curving gently upwards and having from about 2.5 glands on the upper edge.

A. Oswaldi was noticed at intervals with its fairly straight tough little stems and somewhat umbrella-shaped head. In this district it is often known as Milldy or Miljee, which is said to be an aboriginal name, but in many places between the Bogan and Lachlan it is called Dead Finish, though this name appears to properly belong to a Queensland shrub, *Albizzia basaltica*, Benth.

It was noticed that *Cassytha glabella*, R.Br., was parasitic on *Melaleuca uncinata*; and in the Mallee scrubs around Wyalong the latter plant is also the host of a species of *Cassytha*.

The general result of the observations may be summarised as follows: - Starting at Orange, at an elevation of about 3000 feet above sea-level, we are among much of the cold country flora, but during the descent of 2000 feet to Wellington a complete change takes place, and a different class of vegetation is found towards Dubbo and Gilgandra. The chief influence regulating this change is climatic, and this is also affected by a decreasing rain-

fall as the lower country is reached. But in this lower area, which approximates 1000 feet above sea-level, the further changes in the flora are due to different geological formations, or to the difference between rocky and alluvial situations; and it is worthy of note that among the plants found on the sandstone areas a considerable number belong to coastal genera, and some are actually the same species as those growing on the sandstone around Sydney. It is interesting, therefore, to trace the connecting links with a view to explaining the distribution of these species. Certain plants are found growing on the Triassic Sandstone near Sydney, many of which continue westwards on to the Blue Mountains, where the geological formation is exactly the same, though owing to the increased elevation, which often exceeds 3000 feet, a considerable number do not reach the mountain tops. Amongst those which do, however, and which therefore are more amenable to geological formation than to climate, several continue over the mountains, and are now found using the various remnants of the once larger sandstone areas as stepping stones till they are carried right out into the western districts amidst surroundings very different from that of their coastal habitat. It is well known that an area of Triassic and Permo-Carboniferous rocks, which under similar conditions produce a somewhat similar vegetation, extends north-westerly towards Gulgong and Dubbo (as well as northwards towards Gunnedah and Narrabri), and it is chiefly along this tract of country that those plants, which to a great extent disregard climatic conditions, have found their way from the coast to this part of the interior or *vice versa*.

A careful examination of the flora along this route would reveal many points of interest, not only to the botanist, but also to the geologist who gives any attention to the relation which exists between the vegetation and the geological formation upon which it grows. And in studying the two subjects together some information might be found which would help to decide from which direction certain forms of plant life came, and the conditions which assisted their distribution.

The following is a complete list of all the Eucalypts noticed between Orange and Gilgandra:—*E. viminalis*, *E. coriacea*, *E. amygdalina*, *E. Bridgesiana*, *E. melliodora*, *E. tereticornis* and var. *dealbata*, *E. macrorrhyncha*, *E. rubida*, *E. dives*, *E. maculosa*, *E. hæmastoma*, var. *micrantha*, *E. Cambagei*, *E. polyanthemos*, *E. hemiphloia*, var. *albens*, *E. sideroxyton*, *E. rostrata*, *E. conica*, *E. Woollsiana*, *E. siderophloia* and var. *glauca*, *E. viridis*, *E. affinis*, *E. crebra*, *E. populifolia*, *E. dumosa*, and *E. largiflorens*.

The Acacias seen were:—*A. dealbata*, *A. decora*, *A. melanoxylon* (scarce), *A. armata* (scarce), *A. homalophylla*, *A. spectabilis*, *A. triptera*, *A. pendula*, *A. sp.*, *A. Oswaldi*, *A. hakeoides*, *A. implexa*, *A. doratoxyton*, *A. cultriformis*, *A. lineata*, *A. gladiiformis*, and *A. sp.* known locally as Motherumbung.

The Casuarinas noted were:—*C. Cunninghamiana*, *C. Luehmanni*, *C. Cambagei*, *C. stricta*, and *C. paludosa* (?).

I have to acknowledge my indebtedness to Mr. J. H. Maiden, F.L.S., for assistance in identifying some of the plants; and to Mr. James Barling, of Bongeabong near Gilgandra, and Mr. W. M. Thomas, Staff Surveyor, of Dubbo, for general information, and affording facilities for visiting spots of botanical interest.

EXPLANATION OF PLATES ii.-iii.

Plate ii.

Acacia sp.; locally known as Motherumbung (*vide* p.215).

Plate iii.

Acacia pendula, A. Cunn.; Myall; half-grown tree; Gilgandra, N.S.W. (*vide* p.217).